

## Nuclear Science Program at Nuclear Structure Laboratory/SUNY Stony Brook

*Because the questions were directed to the LINAC facility, the Stony Brook RHIC effort is not included in these responses to the questions posed to us by NSAC.*

Question 1: What are the main new research initiatives which are being proposed for your facility during the coming years? Are there specific facility upgrades, which you are pursuing to enhance the competitiveness of your facility through the next decade?

Our research program will focus on 3 main objectives:

- Measuring the anapole moments of a series of Fr isotopes.
- Continuing the study of chiral bands and other unusual properties of high-spin nuclei.
- Giant Monopole resonance studies with a pair detector.

These research programs will not require any specific facility upgrades, other than preventive maintenance and replacement of obsolete equipment.

Question 2: The LRP Charge to NSAC explicitly asks us to consider the FY2001 Budget as the baseline budget for the field. Is this, in fact, a budget level which will allow your facility to operate in a lean, but competitive and cost effective manner, in the years to come? If not, what are the essential additional resources, which you would require, and the benefits that would accrue from them?

- Our program should be able to operate in a lean, but competitive and cost effective manner in the years to come with funds at the level of the FY2001 Budget. However, we do not have any contingency in case of a catastrophic failure, such as a He compressor failure or a column failure of the Van de Graaff.

Question 3: What is the balance of your research program between work at your local facility and outside user efforts at other facilities in the US or abroad? Has this balance changed since the last LRP, and do you expect it to evolve further in the coming years?

- Our efforts are about 80% associated with the home facility, and 20% at other facilities. This has not changed significantly during the last few years.

Question 4: Are you satisfied with your ability to attract and support top quality graduate students?

- We have continued to get some excellent students, but it is becoming much more difficult because the total number studying physics is declining, and because nuclear physics is not often taught as an undergraduate elective.

Question 5: Are there other aspects of your facility and programs, which are unique or particularly noteworthy?

- Our Fr work, which a unique program, requires a lot of beam time, and can only be done at a smaller in-house facility, and with strong atomic physics collaboration. Recently, our chiral band work that was done with the Stony Brook LINAC was written up in Science and in Physics Update.

Listed below are the numbers that were requested by NSAC

Funding FY2000:\$1,206,744 FY2001: \$1,141,752(requested)

Staffing: 5 Perm Ph.D. 3 Tech/Admin 3 Postdocs 9 G.S. 4 Undergraduate

Users, FY2000:	Total #	Ph.D./G.S/Other	DOE/NSF/Other US/Foreign
FY2000:	30	55% : 35% : 10%	5% ; 75% : 10% ; 10%